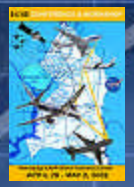
BOEING



Integrated CNS Technologies Conference & Workshop

Industry Perspective on the National and Global Air Transportation Systems

30 April 2002

Dennis Muilenburg
Vice President - Engineering

Air Traffic Management

A global vision to revolutionize air traffic management

A commitment to…

- **Making flying even safer and more secure**
- **Dramatically reducing congestion and delays**
- **Keeping aviation affordable and accessible for all users**
  - **General aviation**
  - **Business**
  - **Commercial**
  - **Military**
- **Supporting existing initiatives around the globe**

Boeing is committed to this vision

- **Sustaining $35 billion annual commercial aircraft business**
- **Developing partnerships and capabilities**
- **Excelling at requirements–driven system integration**
- **Exploring new forms of doing business with governments and air traffic service providers**
- **Working together with partners worldwide**

SBS INTERNATIONAL

Autometric

JEPPESEN

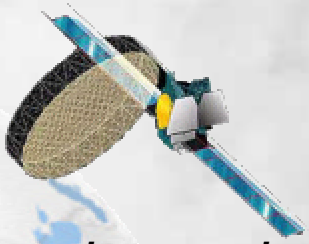
PRESTON Aviation SOLUTIONS

HUGHES SPACE & COMMUNICATIONS

ASAC Airspace Safety Analysis Corporation

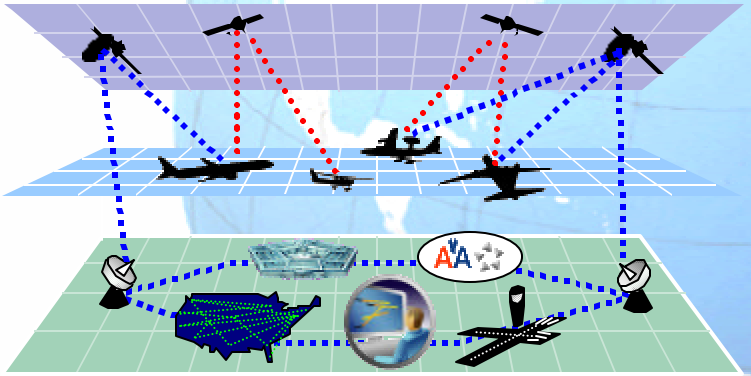
Vision: Revolutionary architecture

Trajectory-based airspace management

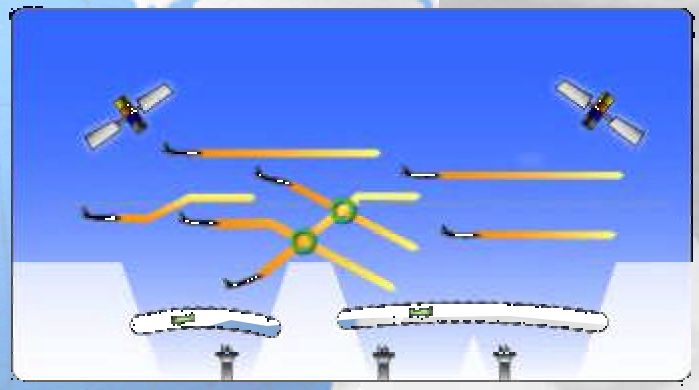


Space-based communication, navigation, and surveillance

Integrated total system solution



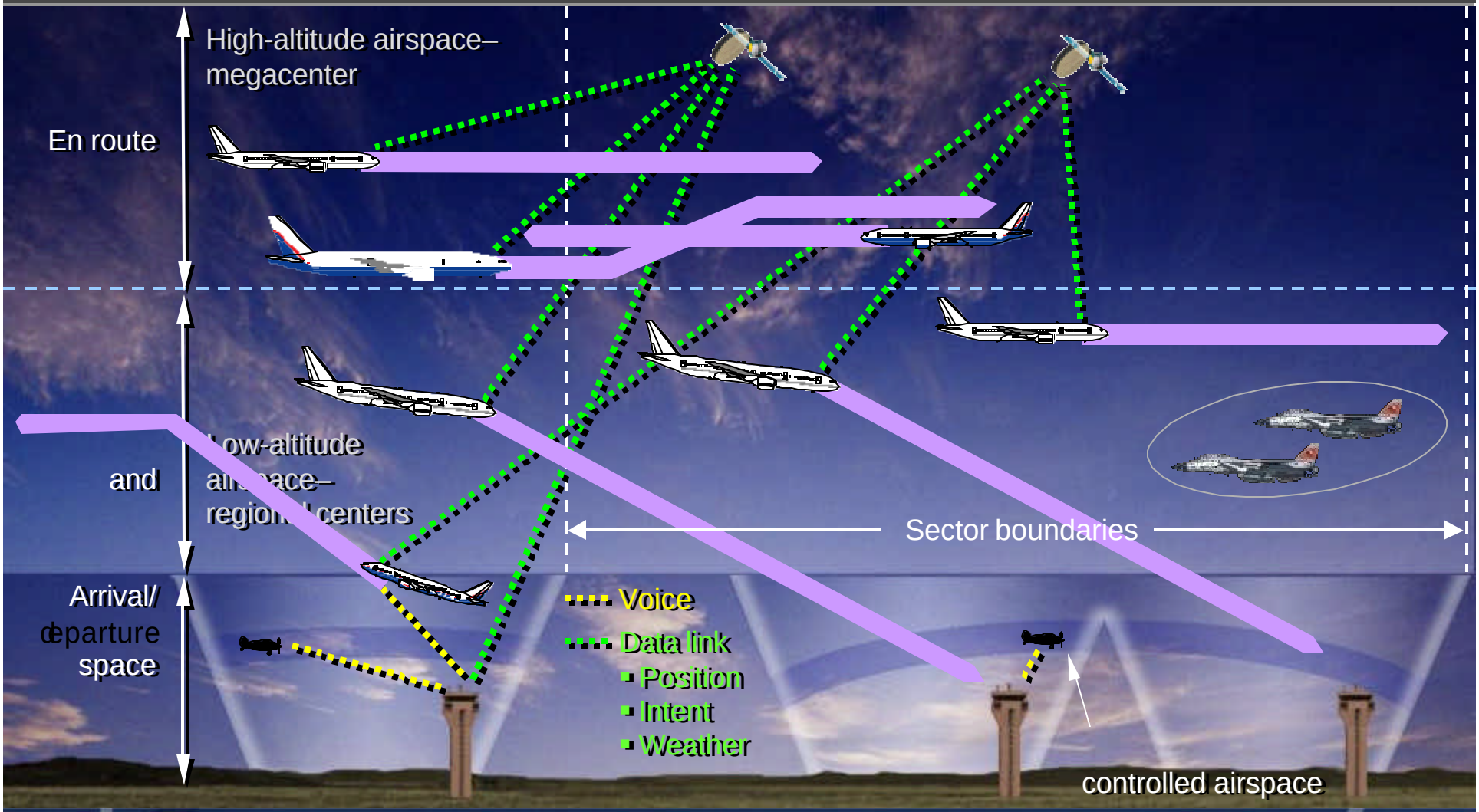
Common Information Network



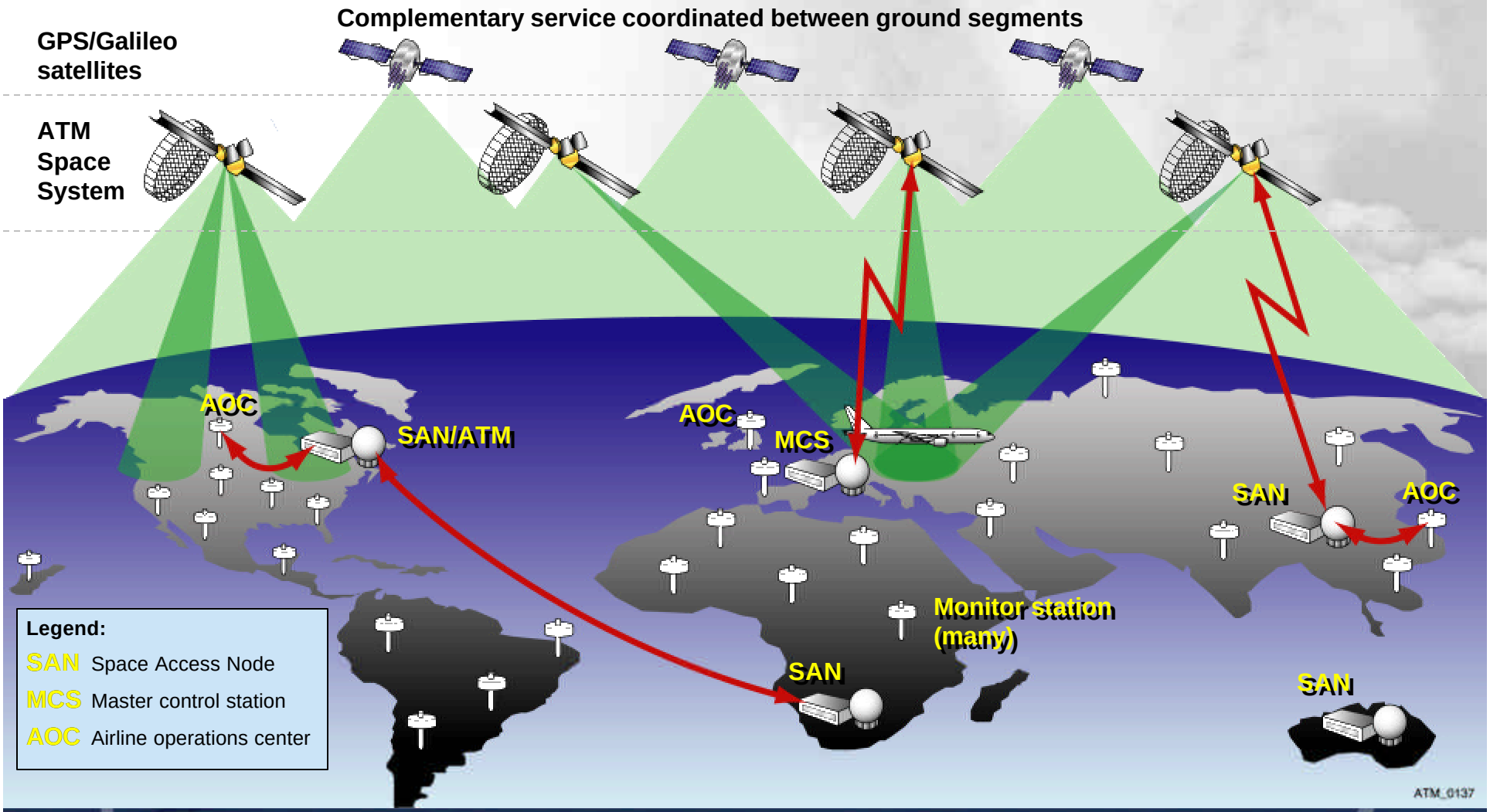
Simplified airspace design

- **"Layered" security approach**
- **Open system principles—growth for the future**
- **Phased transition plan—builds on existing plans**

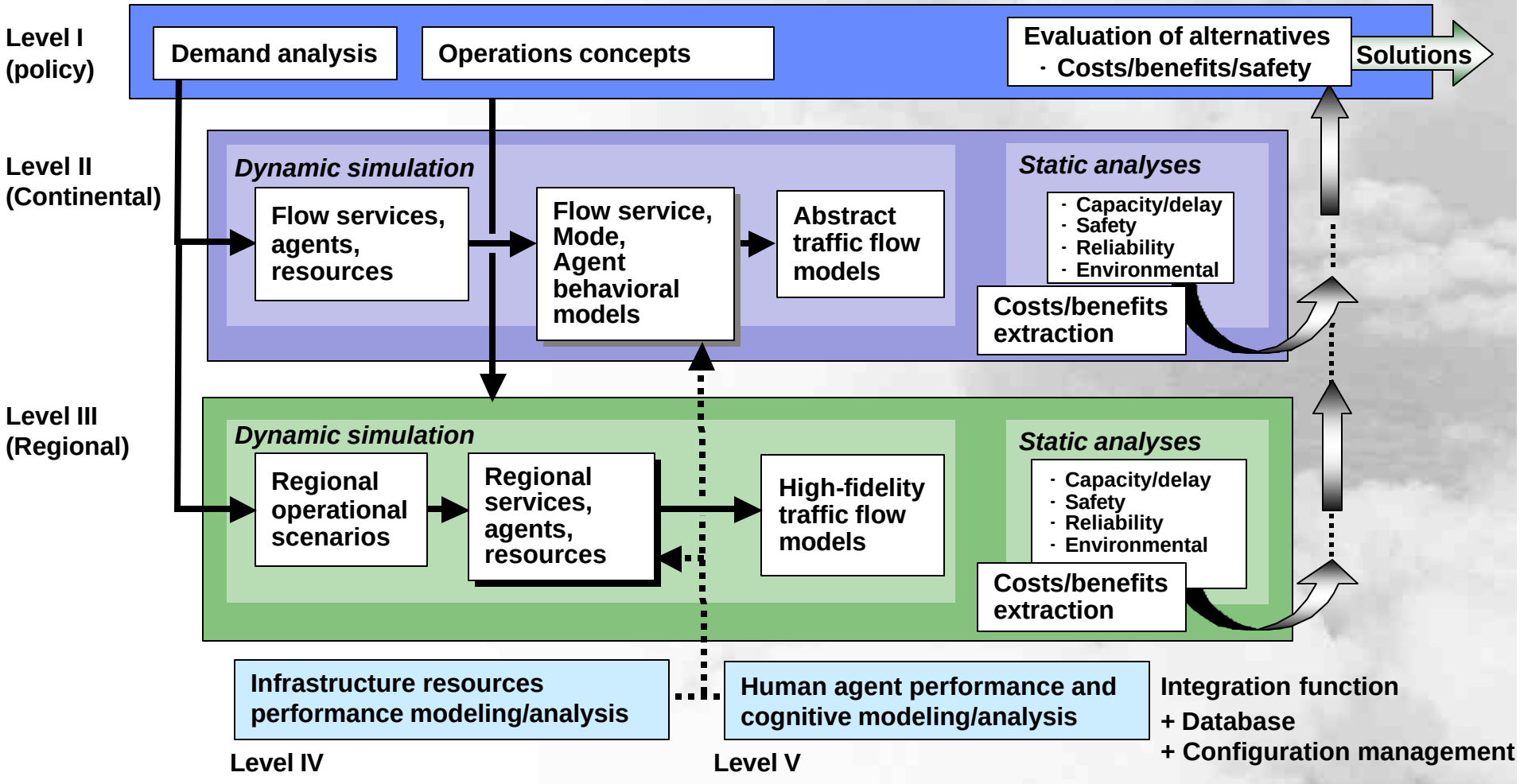
ATM system design



Global communication, navigation and surveillance system architecture

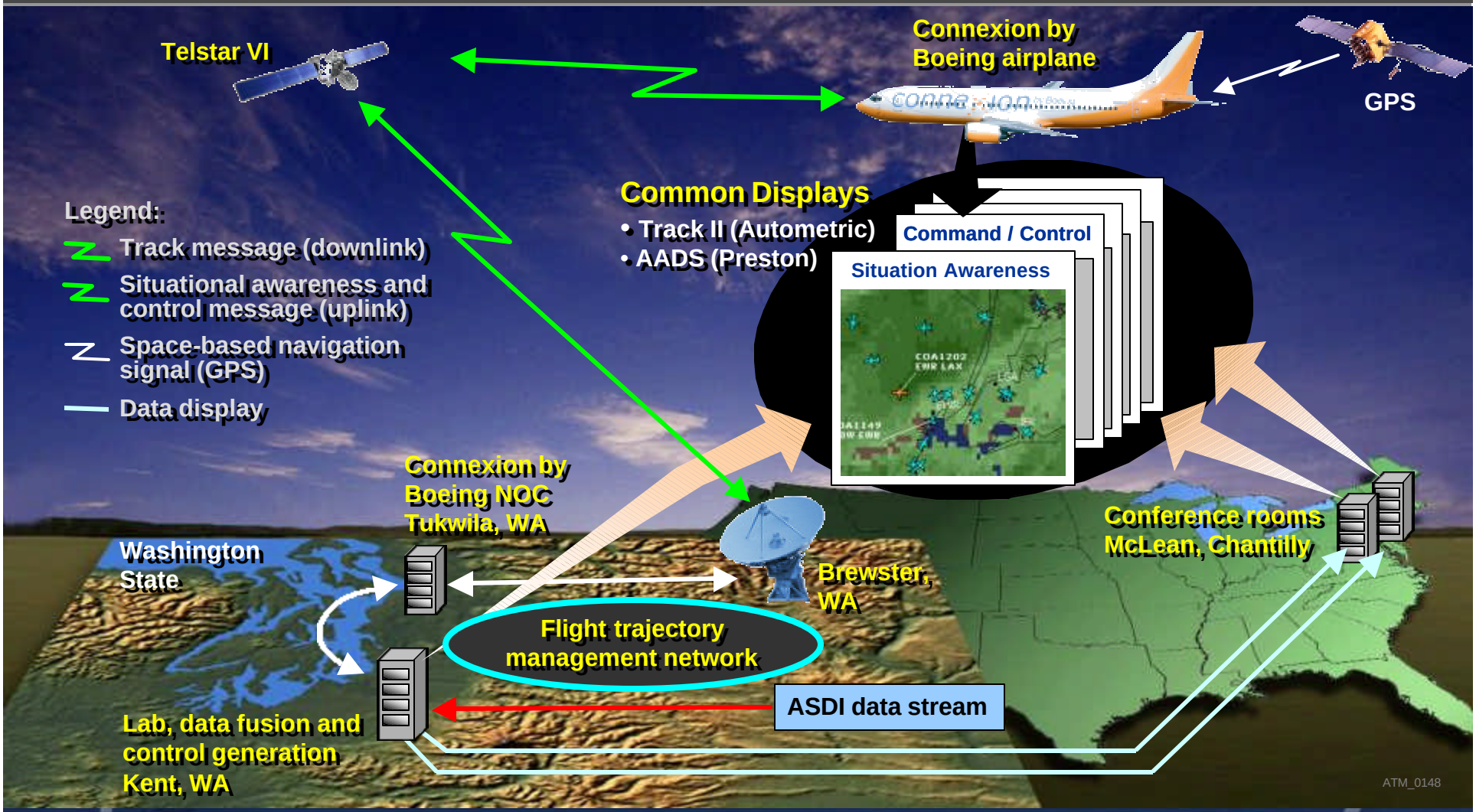


An integrated airspace simulation tool set



ATM_0127

Demonstration overview



Transition strategy

Phase 3

Phase 1

- Pre-departure flow replan
- Initial CIN

Phase 1 +

- Post-departure flow replan
- Augmented CIN

- Full route trajectory separation
- Integration with re-planning function
- Integration with trajectory approach
- Full CIN integration
- Full satellite integration

Phase 2

- Dynamic approach trajectories
- Terminal CIN

Phase 2 +

- Extended dynamic trajectories
- Augmented terminal CIN

ATM_0105

Working Together Team Phase 1 Participants

Suppliers (7)

- Airbus
- Boeing
- GAMA
- Lockheed-Martin
- MIT Lincoln Labs
- Raytheon
- Thales

Support/Policy (6)

- European Commission
- MITRE
- NASA
- RTCA
- ICAO
- Volpe

Commercial Carriers (16)

- ADF
- ALPA
- ATA
- CAA
- IATA
- RAA
- Alaska
- American
- Continental
- Delta
- FedEx
- Northwest
- Southwest
- United
- UPS
- US Airways

General Aviation (2)

- AOPA
- NBAA

Service Providers (7)

- AAAE
- ACI
- ARINC
- Eurocontrol
- FAA
- NATCA
- SITA

Military (1)

- DOD

39 stakeholders

Working Together

Working Together

Phase 1
Working Together
(Completed)

System Performance Requirements Document (39 stakeholders)

Phase 2
Working Together

U.S. Working Together team

European / North Atlantic Working Together team

- **Identify cornerstone system performance requirements**
- **Stakeholder needs and priorities**
- **Gap analysis of cornerstone requirements**
- **Operational concept**

Gather input from Asia; other regions

Phase 3 and beyond
Working Together

Design modernized Air Traffic Management System that meets stakeholder needs

Working Together

BOEING
Questions and Comments
Air Traffic Management